

INTRODUCTION

The purpose of this report is to provide a summary of the pertinent literature (subject to time limitations; an assessment of the quality and quantity of data available for several important types of parameters (e.g., water temperature, habitat quality; water quality, etc.); and an overall assessment of the general condition of the stream to support anadromous salmonids, adequacy of the data to support specific decisions regarding the stream's potential to support anadromous, and a list of factors that should be considered in the Habitat Conservation Planning process.

This literature review and assessment is focused on the following general areas that are important to understanding the current condition of the stream and assessing its potential as an anadromous fish stream:

- Existing Water Quality Data
- Water Temperature Data
- Benthic Macroinvertebrate Data
- Physical Habitat Data
- Fishery Resource Data
- Fish Passage or Screening Data

METHODS

The data and information used to prepare the data summaries and overall assessment of stream conditions are from a variety of sources. Limitations on the time available to conduct the literature review precluded an exhaustive search of all possible data sources. I have concentrated on reviewing California Department of Fish and Game files, data and sampling efforts conducted by the various watershed groups, and environmental documents prepared by the various jurisdictions that include information about this watershed.

Where the amount of data from a particular source was small, I incorporated all of the relevant information completely in this report. In cases where the volume of data was large, I summarized the data into what I considered meaningful units. This is particularly true for the water temperature data. Where data is presented, the source has been documented within the presentation. This allows the reader to immediately understand where the data or information originated. In addition to the data and information presented, I also reviewed the VHS tape of the stream videography project to provide additional visual assessment of the watershed for the areas flown.

Although the data were to be submitted in an Excel spreadsheet format to the Sierra Business Council and County of Placer, my review has found very little information that is in electronic format. Also, much of the data is scattered in various files with just snippets of information in a single location. Where possible, I have included electronic copies of the data to the County under separate cover. This is particularly true of the water temperature data from the continuous monitoring sites (this data has already been

transmitted to the County). Some other data sources may be electronic format, but may not be transmitted to the County because of the limited nature and overall usefulness, unless the County decides otherwise (e.g., water quality and benthic macroinvertebrate data).

Water Temperature

Since daily maximum, minimum, and/or mean temperatures individually are of little value, I have chosen to plot all data points. Therefore, I have split the year into time periods that roughly correspond to:

Fall-early winter: September through December: primary fall chinook spawning period is November-December.

Winter-spring: January through April: fall chinook incubation and rearing and steelhead spawning, incubation, and rearing.

Late spring-summer: May to September: summer rearing for steelhead juveniles.

Data plots for these time periods are presented below to allow the reader to assess the potential of Dry Creek to support chinook salmon and/or steelhead trout spawning and rearing. A variety of localized data and literature was reviewed, in order to get some generalized understanding of the temperature effects on various life history stages for both chinook salmon and steelhead trout. There is fairly substantial variation in temperature effects noted for most life history stages. However, the reader is reminded that both chinook and steelhead have a highly adaptable physiology and ability to seek thermal refuge during part of the day which allows them to tolerate and/or avoid lethal temperatures. Some of the literature sources cite criteria from others and some of the data is based on fish captures with water temperature taken concurrently. Two tables with data and reference are included in Appendix A of this report. Based on this review, the following criteria have been used to indicate what life history stages a particular stream may support at any given time:

<u>Chinook Salmon</u>	<u>°C</u>	<u>Steelhead Trout</u>	<u>°C</u>
Egg and fry development	14.4 (58 °F)	Egg and fry development	14.4 (58 °F)
Juvenile rearing	21.1 (70 °F)	Juvenile rearing	22.2 (72 °F)
Adult migration	21.7 (71 °F)	Adult migration and holding	22.2 (72 °F)

To aid the reader, I have placed reference lines, as appropriate, on the graphics at 14.4 °C and at 22.2 °C to roughly represent the water temperatures suitable for salmonid spawning migration, egg and fry development, and juvenile rearing.